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Heart Failure

THE RELATIONSHIP BETWEEN TRICUSPID ANNULAR SYSTOLIC EXCURSION AND PULMONARY ARTERIAL SYSTOLIC PRESSURE IN HEART FAILURE: AN INDICATOR OF CARDIAC LENGHH VERSUS FORCE RELATIONSHIP THAT DISCLOSES DISEASE SEVERITY AND PROGNOSIS

Oral Contributions
West, Room 2006
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Background: Right ventricular (RV) dysfunction carries a remarkable risk of death in heart failure (HF). Echo-derived pulmonary artery systolic pressure (PASP) and tricuspid annular systolic excursion (TAPSE), as an indicator of RV systolic function, are of remarkable clinical value in the follow-up of HF patients. We hypothesized that the relationship between TAPSE (longitudinal RV fiber shortening) and PASP (developed force) would provide an index of RV force-length relationship and that their ratio would better disclose disease severity and prognosis compared to either variable independently.

Methods: A cohort of 293 stable HF patients with both reduced (HFrEF, n=247) and preserved left ventricular ejection fraction (HFpEF, n=46) underwent echo-Doppler and tissue Doppler imaging as well as NT-pro-BNP biomarker assessment and prospectively tracked for adverse events.

Results: TAPSE vs PASP relationship showed a downward shift of the regression line for nonsurvivors that were distributed in the more unfavorable relationship with highest PASP and lower TAPSE . A similar regression line was observed for patients with HFrEF and HFpEF. Given the collinearity between both TAPSE and PASP and the TAPSE/PASP ratio, separate Cox regression and Kaplan-Meier analyses were performed; the first with TAPSE and PASP as individual measures and the second combining them in ratio form. HR for variables retained in the multivariate regression, using the TAPSE/PASP ratio as optimal dichotomous threshold were: TAPSE/PASP </≥ 0.36 (HR: 10.4, p<0.01); NT-pro-BNP </≥ 1060 pg/ml (HR: 8.9 p<0.001); TAPSE </≥16 mm (HR: 5.1 p<0.01); NYHA </≥3 (HR: 4.4, p<0.01); E/E' (HR:4.1; p<0.01).

Conclusions: This study shows that the TAPSE vs PASP relationship is shifted downward in non-survivors, discloses disease severity and prognosis better than individual variable assessment and is similarly distributed in HFrEF and HFpEF. Results confirm that echo-derived RV systolic function assessment is of basic relevance in HF. The TAPSE vs PASP as a possible index of the length/force relationship is a step forward for a more efficient RV function evaluation and is not affected by the quality of left ventricular dysfunction.